I. AMENDMENTS TO THE CLAIMS

Claim 1. (Currently Amended) A method for selectively increasing the amount of at least one metal recovered from metal-containing soil comprising:

(a) adjusting the pH of the soil from an initial pH to a raised pH of 5.6 to 9.5; and

(b) cultivating at least one metal-hyperaccumulator plant in the soil having the raised pH under conditions sufficient to permit said at least one plant to accumulate said at least one metal from the soil in above-ground tissue,

wherein the at least one metal-hyperaccumulator plant is selected from the group consisting of nickel-hyperaccumulator plants that accumulate about 1000 mg or more of nickel per 1 kg dry weight of plant tissue, and cobalt-hyperaccumulator plants that accumulate about 1000 mg or more of cobalt per 1kg dry weight of plant tissue~~, zinc-hyperaccumulator plants that accumulate about 10,000 mg or more of zinc per 1 kg dry weight of plant tissue, manganese-hyperaccumulator plants that accumulate about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue, and cadmium-hyperaccumulator plants that accumulate about 100 mg or more of cadmium per 1 kg dry weight of plant tissue~~.

Claim 2. (Original) The method of claim 1, wherein said at least one metal is nickel.

Claim 3. (Original) The method of claim 1, wherein the pH of the soil is elevated by adding to the soil at least one agent that results in an increase in the soil pH.

Claim 4. (Previously Presented) The method of claim 3, wherein the at least one agent that results in an increase in the soil pH is selected from the group consisting of limestone, dolomitic limestone, lime, hydrated lime, limestone equivalents, and mixtures thereof.

Claims 5 to 7. (Canceled)

Claim 8. (Original) The method of claim 1, wherein said at least one plant is an Alyssum plant.

Claim 9. (Previously Presented) The method of claim 8, wherein said *Alyssum* plant is selected from the group consisting of: *A. murale, A. pintodasilvae, A. serpyllifolium, A. malacitanum, A. lesbiacum, A. fallacinum, A. argenteum, A. bertolonii, A. tenium, A. heldreichii, A. corsicum, A. pterocarpum, A. caricum* and combinations thereof.

Claim 10. (Currently Amended) A method for recovering nickel from nickel-containing soil comprising:

(a) adjusting the pH of the soil from an initial pH to a raised pH of 5.6 to 9.5; ~~and~~

(b) cultivating at least one nickel-hyperaccumulator plant in the soil having the raised pH under conditions such that at least 0.1% of the above-ground tissue of said at least one plant, on a dry weight basis, is nickel;

(c) harvesting said at least one plant; and

(d) recovering nickel from said harvested plant.

Claim 11. (Previously Presented) The method of claim 10, wherein the soil has a calcium concentration of between about 20-80% of exchangeable cations.

Claim 12. (Previously Presented) The method of claim 10, wherein in step (d), the nickel is recovered by drying and combusting the harvested plant to oxidize and vaporize organic material present.

Claim 13. (Original) The method of claim 10, wherein said at least one plant is an Alyssum plant.

Claim 14. (Previously Presented) The method of claim 13, wherein said *Alyssum* plant is selected from the group consisting of: *A. murale, A. pintodasilvae, A. serpyllifolium, A. malacitanum, A. lesbiacum, A. fallacinum, A. argenteum, A. bertolonii, A. Teniu, A. heldreichii, A. corsicum, A. pterocarpum, A. caricum* and combinations thereof.

Claim 15. (Previously Presented) The method of claim 14, wherein said *Alyssum* plant is selected from the group consisting of: *A. corsicum G16, A. murale G69, A. murale G82* and combinations thereof.

Claim 16. (Previously Presented) The method of claim 10, wherein about 2.5% or more of the above-ground tissue of said at least one plant, on a dry weight basis, is nickel.

Claim 17. (Previously Presented) The method of claim 16, wherein about 3.0% or more of the above-ground tissue of said at least one plant, on a dry weight basis, is nickel.

Claim 18. (Original) The method of claim 17, wherein about 4.0% of the above-ground tissue of said at least one plant, on a dry weight basis, is nickel.

Claims 19 to 37. (Canceled)

Claim 38. (Currently Amended) A method for decontaminating metal-containing soil, comprising cultivating at least one hyperaccumulator plant in metal-containing soil, whereby the concentration of metal in the above-ground plant tissue of said at least one hyperaccumulator plant exceeds the concentration of metal in said soil by a factor of at least 2;

wherein the at least one metal-hyperaccumulator plant is selected from the group consisting of nickel-hyperaccumulator plants that accumulate about 1000 mg or more of nickel per 1 kg dry weight of plant tissue, and cobalt-hyperaccumulator plants that accumulate about 1000 mg or more of cobalt per 1kg dry weight of plant tissue~~, zinc-hyperaccumulator plants that accumulate about 10,000 or more mg of zinc per 1 kg dry weight of plant tissue, manganese-hyperaccumulator plants that accumulate about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue, and cadmium-hyperaccumulator plants that accumulate about 100 mg or more of cadmium per 1 kg dry weight of plant tissue~~.

Claim 39. (Original) The method of claim 38, wherein the at least one hyperaccumulator plant exceeds the concentration of metal in said soil by a factor of 3.

Claim 40. (Original) The method of claim 39, wherein the at least one hyperaccumulator plant exceeds the concentration of metal in said soil by a factor of 4.

Claims 41 to 47. (Canceled)

Claim 48. (Previously Presented) The method of claim 1, wherein the at least one metal is selected from the group consisting of nickel, cobalt, palladium, rhodium, ruthenium, platinum, iridium, osmium, rhenium and mixtures thereof.

Claim 49. (Currently Amended) A method for selectively increasing in a plant the amount of at least one metal recovered from metal-containing soil comprising:

(a) adjusting the pH of the soil from an initial pH to a raised pH of at least 5.6; and

(b) cultivating at least one metal-hyperaccumulator plant in the soil having the raised pH under conditions sufficient to permit said at least one plant to accumulate said at least one metal from the soil in above-ground tissue,

wherein the at least one metal-hyperaccumulator plant is selected from the group consisting of nickel-hyperaccumulating plants that accumulate about 1000 or more mg of nickel per 1 kg dry weight of plant tissue, and cobalt-hyperaccumulating plants that accumulate about 1000 mg or more of cobalt per 1kg dry weight of plant tissue~~, zinc-hyperaccumulating plants that accumulate about 10,000 or more mg of zinc per 1 kg dry weight of plant tissue, manganese-hyperaccumulating plants that accumulate about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue, and cadmium-hyperaccumulating plants that accumulate about 100 mg or more of cadmium per 1 kg dry weight of plant tissue~~.

Claim 50 to 53. (Canceled)

Claim 54. (Previously Presented) A method for selectively increasing the amount of at least one metal recovered from metal-containing soil comprising:

(a) adjusting the pH of the soil from a first pH to a second pH of 5.6 to 9.5; and

(b) cultivating at least one metal-hyperaccumulator plant in the soil having the second pH under conditions sufficient to permit said at least one plant to accumulate said at least one metal from the soil in above-ground tissue,

wherein the at least one metal-hyperaccumulator plant is selected from the group consisting of nickel-hyperaccumulator plants that accumulate about 1000 mg or more of

nickel per 1 kg dry weight of plant tissue, and cobalt-hyperaccumulator plants that accumulate about 1000 mg or more of cobalt per 1kg dry weight of plant tissue~~, zinc-hyperaccumulator plants that accumulate about 10,000 mg or more of zinc per 1 kg dry weight of plant tissue, manganese-hyperaccumulator plants that accumulate about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue, and cadmium-hyperaccumulator plants that accumulate about 100 mg or more of cadmium per 1 kg dry weight of plant tissue~~.

Claim 55. (Currently Amended) A method for recovering nickel from nickel-containing soil comprising:

(a) adjusting the pH of the soil from a first pH to a second pH of 5.6 to 9.5; ~~and~~

(b) cultivating at least one nickel-hyperaccumulator plant in the soil having the second pH under conditions such that at least 0.1% of the above-ground tissue of said at least one plant, on a dry weight basis, is nickel;

(c) harvesting said at least one plant; and

(d) recovering nickel from said harvested plant.

Claim 56. (Currently Amended) A method for selectively increasing in a plant the amount of at least one metal recovered from metal-containing soil comprising:

(a) adjusting the pH of the soil from a first pH to a second pH of at least 5.6; and

(b) cultivating at least one metal-hyperaccumulator plant in the soil having the second pH under conditions sufficient to permit said at least one plant to accumulate said at least one metal from the soil in above-ground tissue;

wherein the at least one metal-hyperaccumulator plant is selected from the group consisting of nickel-hyperaccumulating plants that accumulate about 1000 or more mg of nickel per 1 kg dry weight of plant tissue, and cobalt-hyperaccumulating plants that accumulate about 1000 mg or more of cobalt per 1kg dry weight of plant tissue~~, zinc-hyperaccumulating plants that accumulate about 10,000 or more mg of zinc per 1 kg dry weight of plant tissue, manganese-hyperaccumulating plants that accumulate about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue, and cadmium-~~

~~hyperaccumulating plants that accumulate about 100 mg or more of cadmium per 1 kg dry weight of plant tissue~~.

Claim 57. (New) A method for selectively increasing the amount of manganese recovered from manganese-containing soil comprising:

(a) adjusting the pH of the soil from an initial pH to a raised pH of 5.6 to 9.5; and

(b) cultivating at least one manganese-hyperaccumulator plant in the soil having the raised pH under conditions sufficient to permit the plant to accumulate about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue.

Claim 58. (New) A method for decontaminating manganese-containing soil, comprising cultivating at least one metal-hyperaccumulator plant in manganese-containing soil, wherein the metal-hyperaccumulator plant accumulates about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue.

Claim 59. (New) A method for selectively increasing in a plant the amount of manganese recovered from manganese-containing soil comprising:

(a) adjusting the pH of the soil from an initial pH to a raised pH of at least 5.6; and

(b) cultivating at least one manganese-hyperaccumulator plant in the soil having the raised pH under conditions sufficient to permit the plant to accumulate about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue.

Claim 60. (New) A method for selectively increasing the amount of manganese recovered from manganese-containing soil comprising:

(a) adjusting the pH of the soil from a first pH to a second pH of 5.6 to 9.5; and

(b) cultivating at least one manganese-hyperaccumulator plant in the soil having the second pH under conditions sufficient to permit said at least one plant to accumulate about 10,000 mg or more of manganese per 1 kg dry weight of plant tissue.